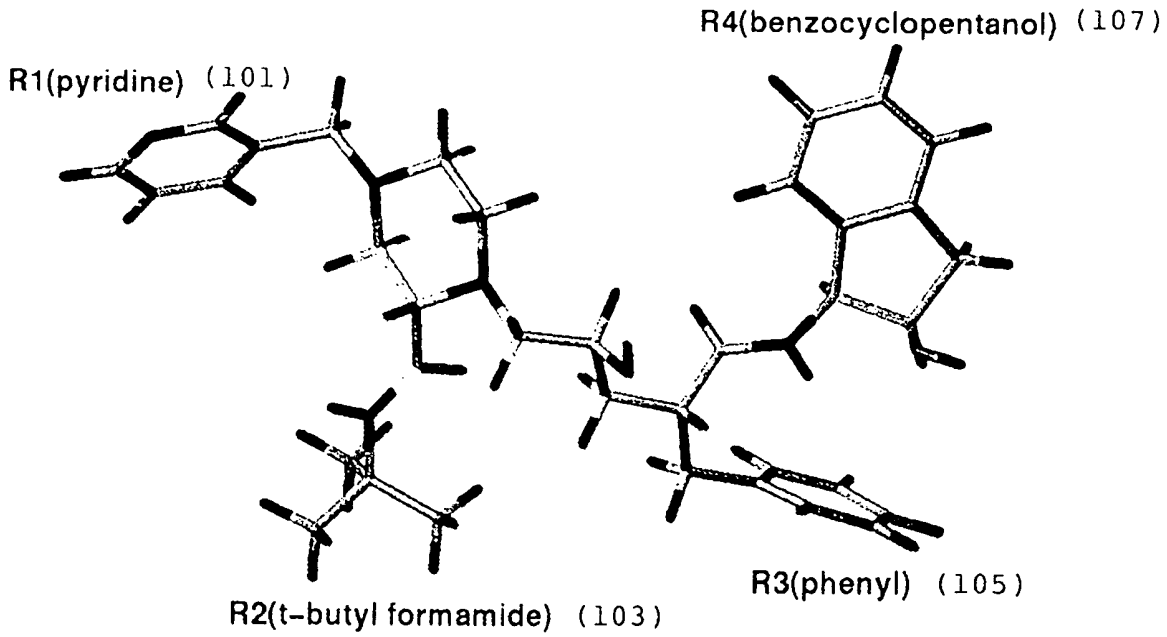

R4(benzocyclopentanol) (107)
R1(pyridine) (101)
R3(phenyl) (105)
R2(t-butyl formamide) (103)

FIG. 1

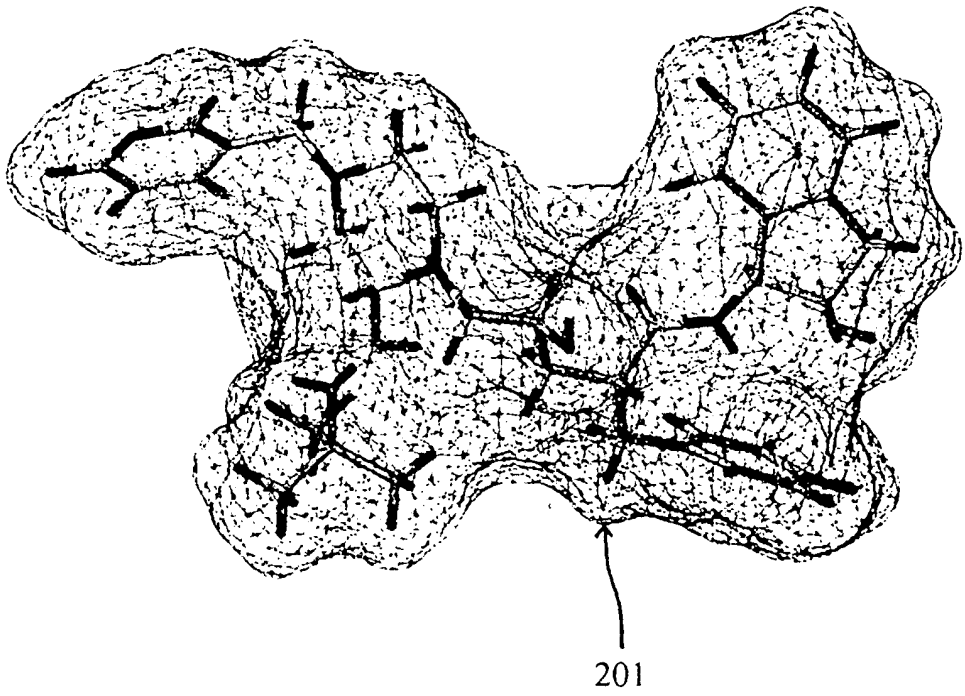


FIG. 2

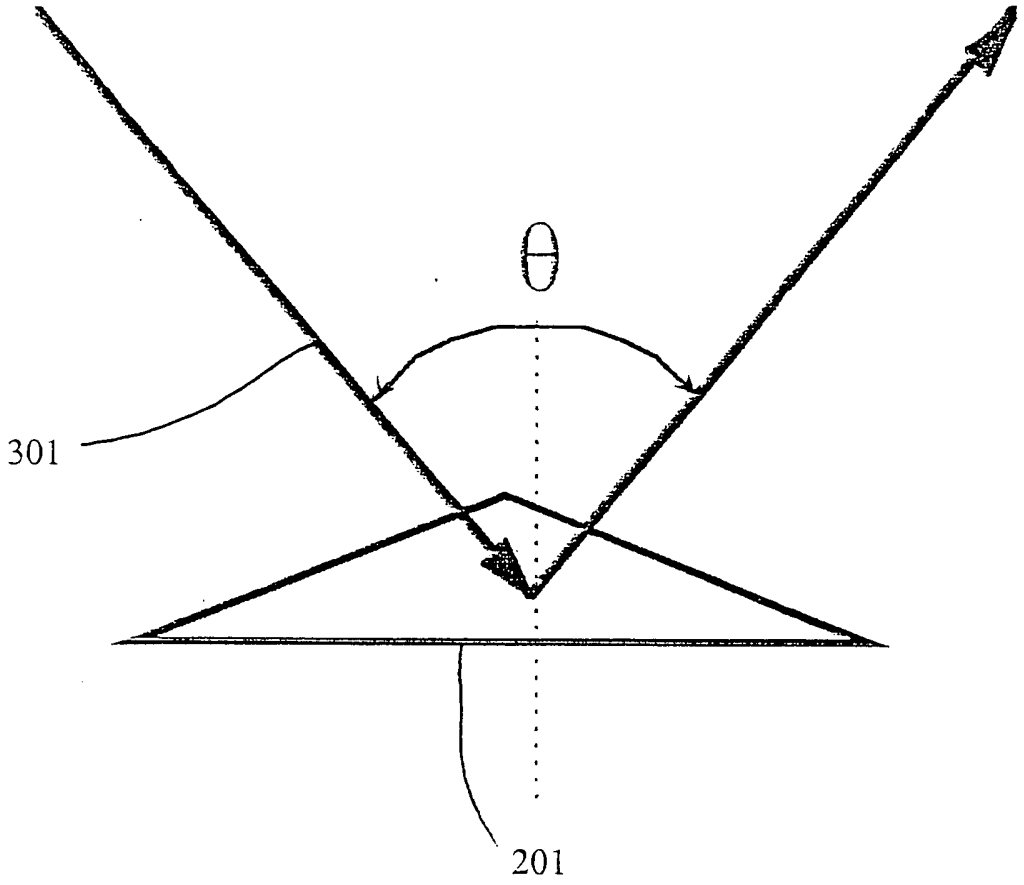


FIG. 3

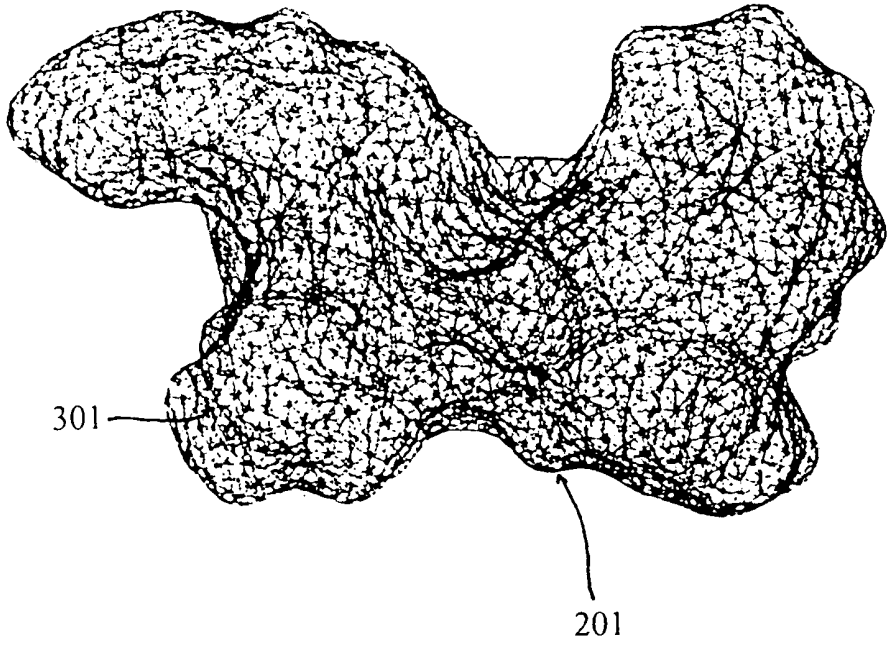


FIG. 4A

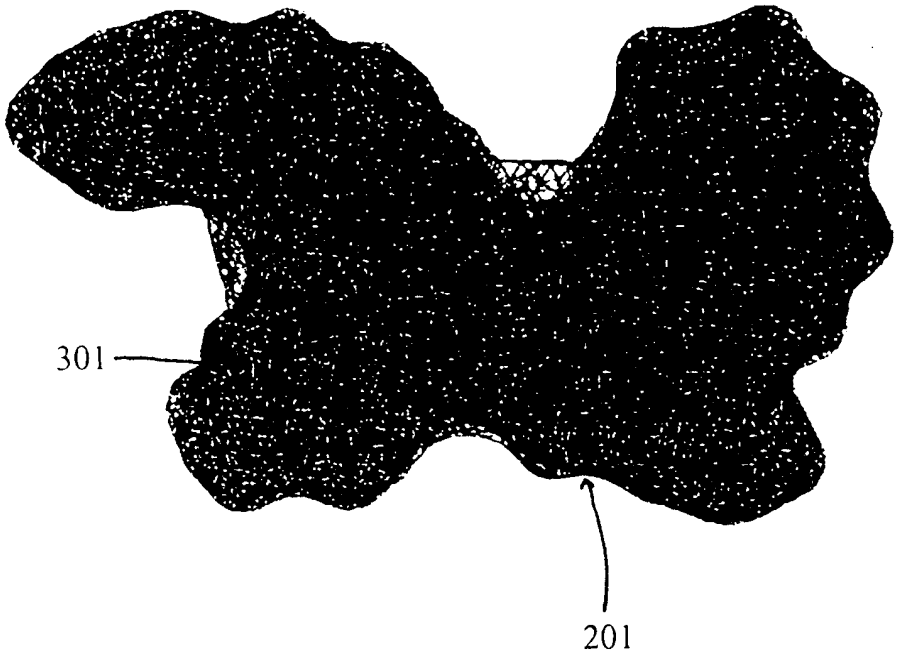


FIG. 4B

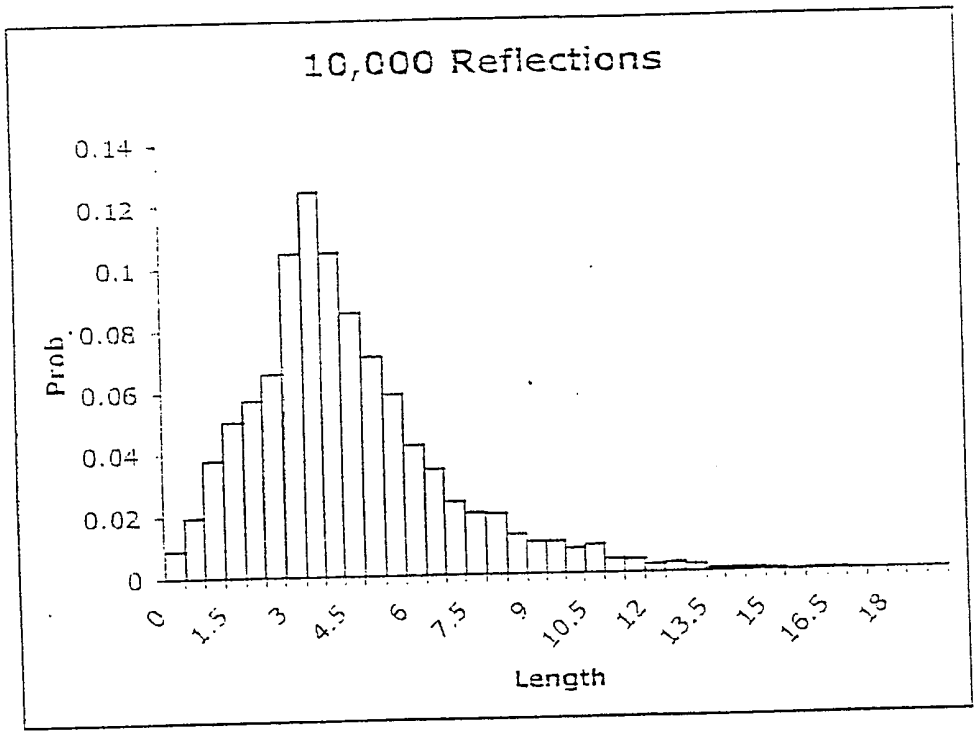

10,000 Reflections
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Prob
0
1.5
3
4.5
6
7.5
9
10.5
12
13.5
15
16.5
18
Length

FIG. 5A

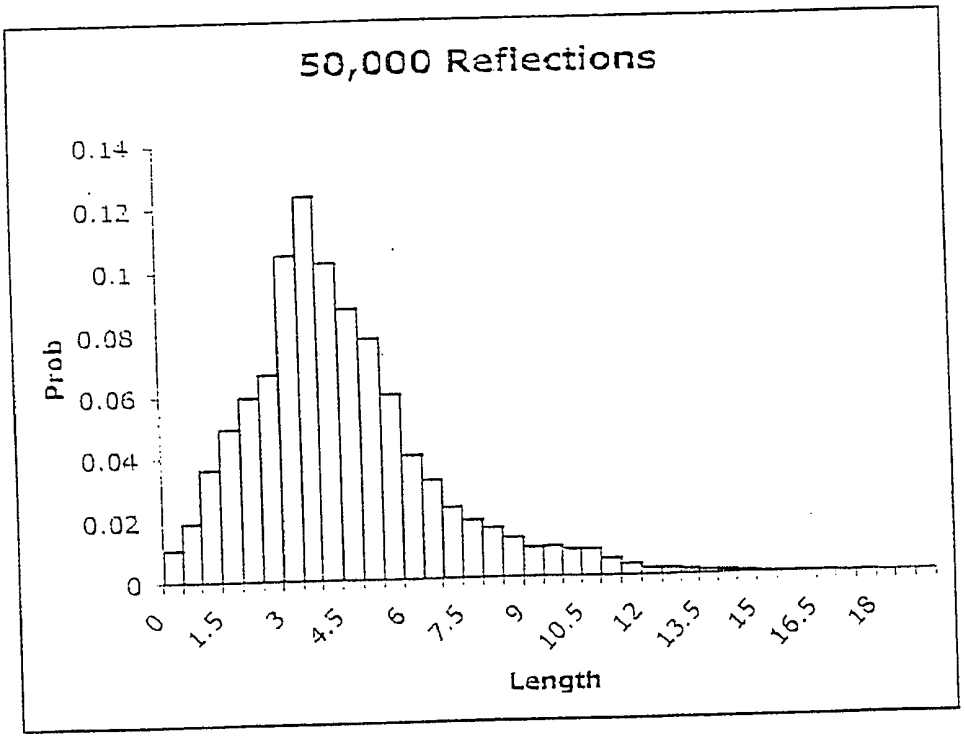

50,000 Reflections
Prob
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
1.5
3
4.5
6
7.5
9
10.5
12
13.5
15
16.5
18
Length

FIG. 5B

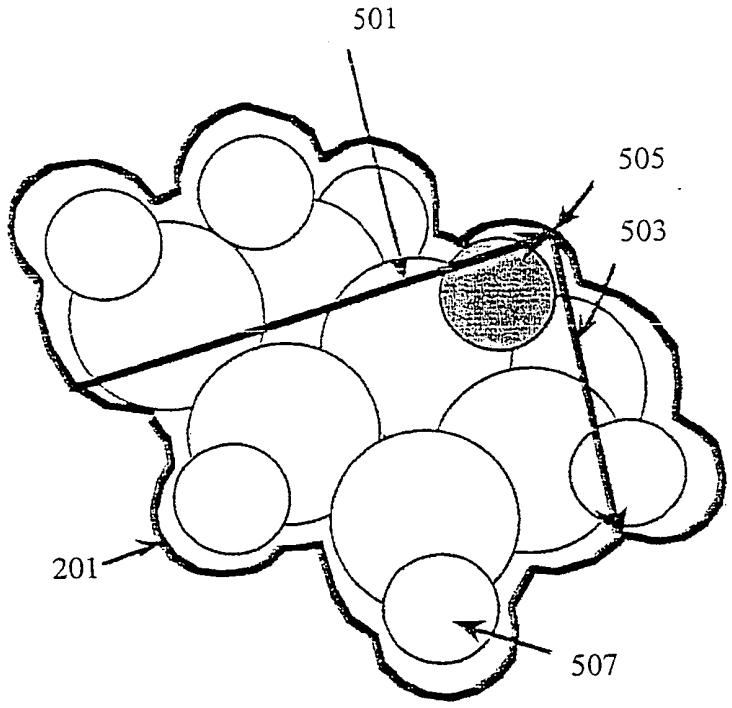


FIG. 6

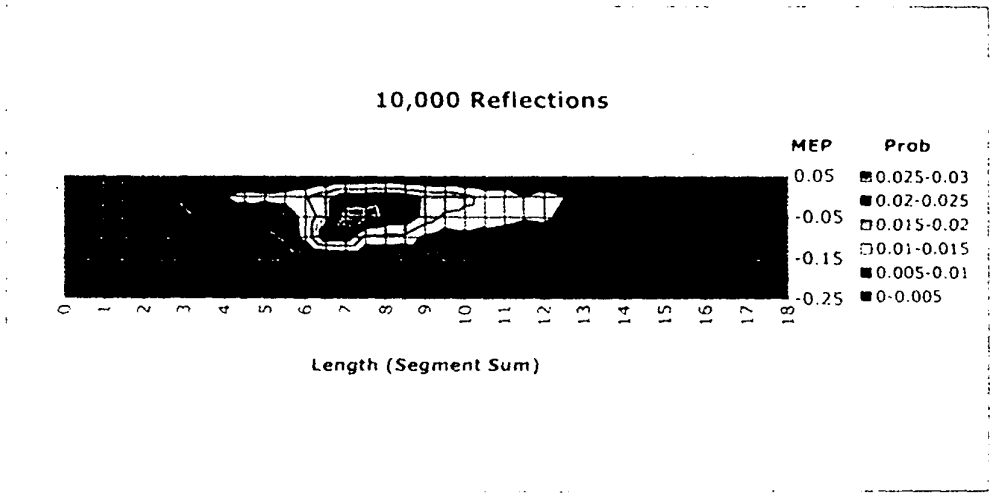

10,000 Reflections
MEP
Prob
0.05
-0.05
-0.15
-0.25
0.025-0.03
0.02-0.025
0.015-0.02
0.01-0.015
0.005-0.01
0-0.005
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Length (Segment Sum)

FIG. 7A

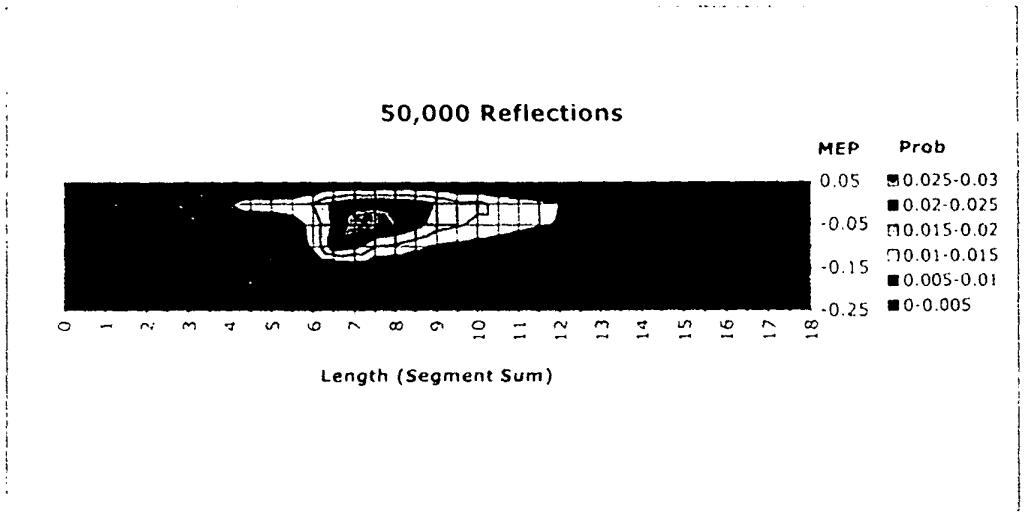

50,000 Reflections
MEP
Prob
0.05
-0.05
-0.15
-0.25
0.025-0.03
0.02-0.025
0.015-0.02
0.01-0.015
0.005-0.01
0-0.005
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Length (Segment Sum)

FIG. 7B

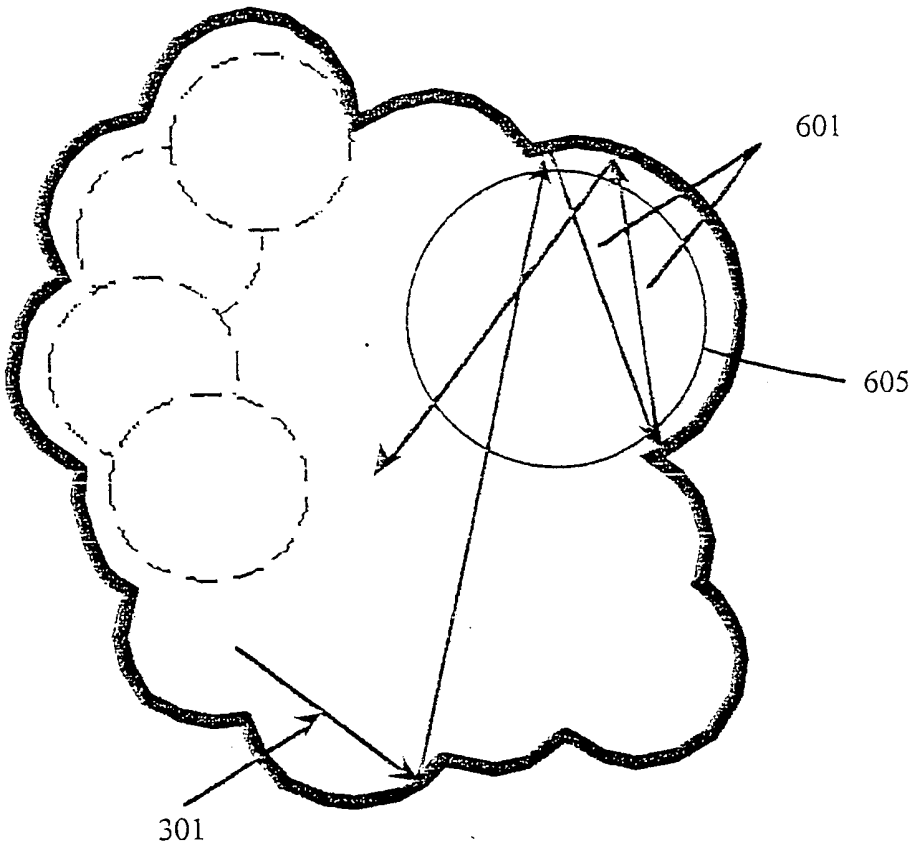


FIG. 8

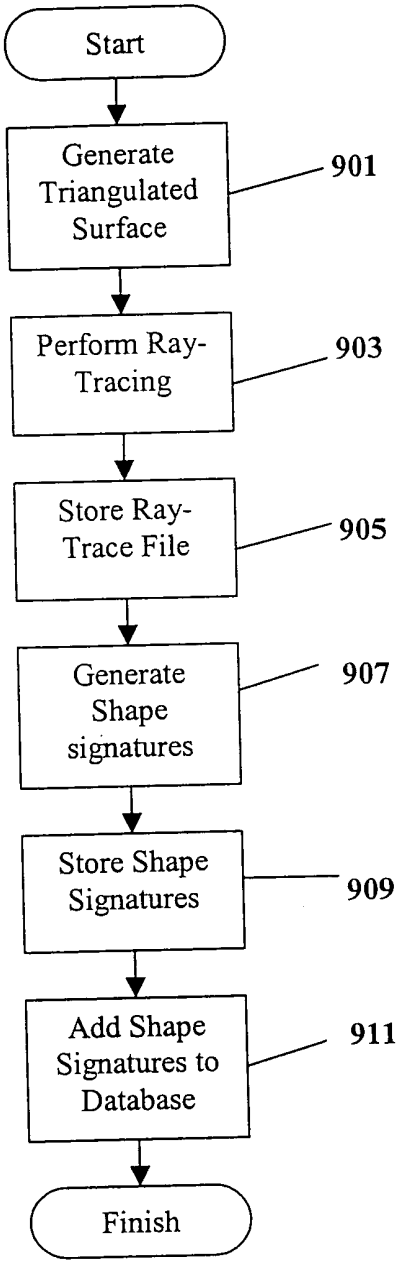

Start
Generate Triangulated Surface
901
Perform Ray-Tracing
903
Store Ray-Trace File
905
Generate Shape signatures
907
Store Shape Signatures
909
Add Shape Signatures to Database
911
Finish

FIG. 9

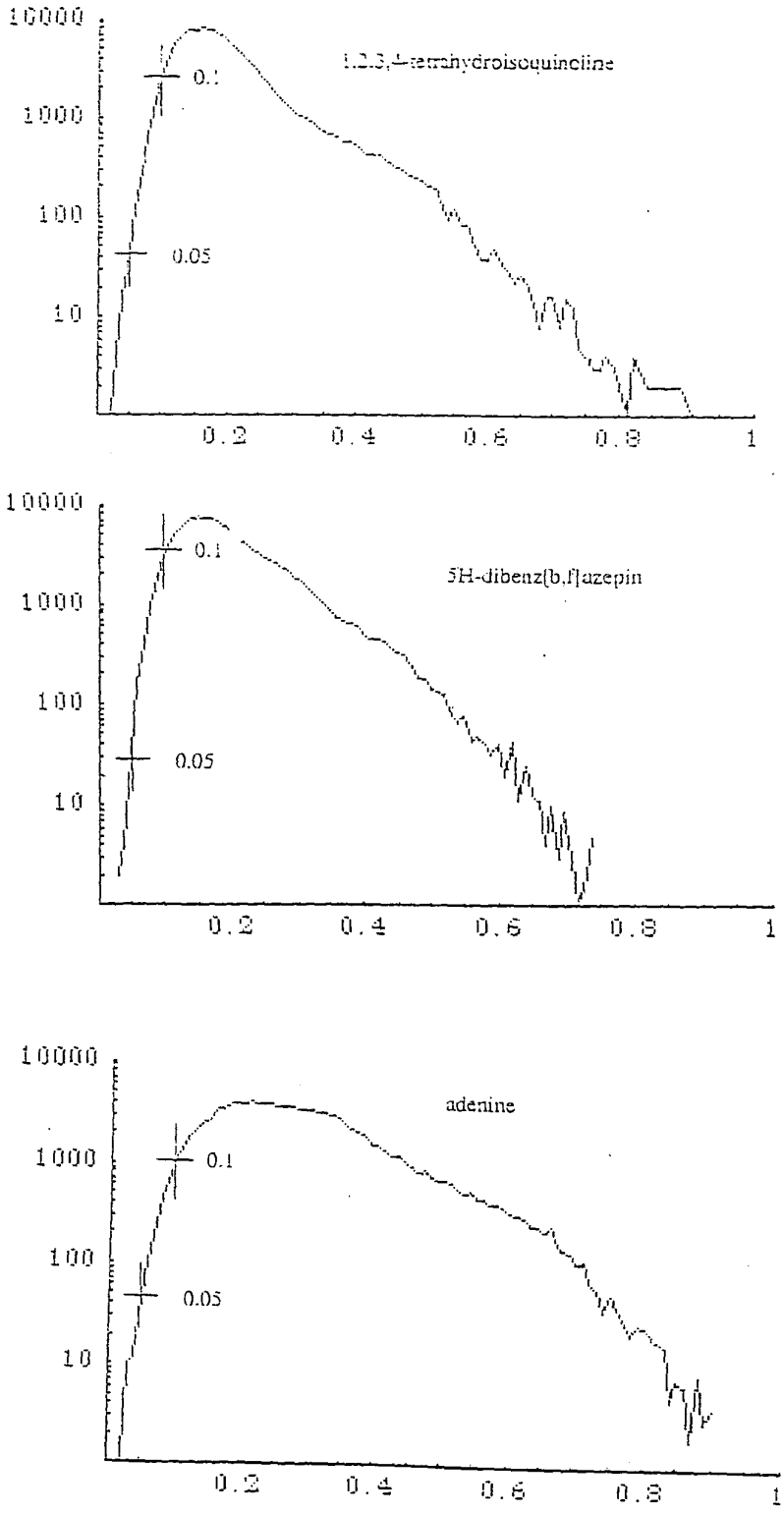

10000
1000
100
10
0.1
0.05
1,2,3,4-tetrahydroisoquinoline
0.2
0.4
0.6
0.8
1
10000
1000
100
10
0.1
0.05
5H-dibenz[b,f]azepin
0.2
0.4
0.6
0.8
1
10000
1000
100
10
0.1
0.05
adenine
0.2
0.4
0.6
0.8
1

FIG. 10A

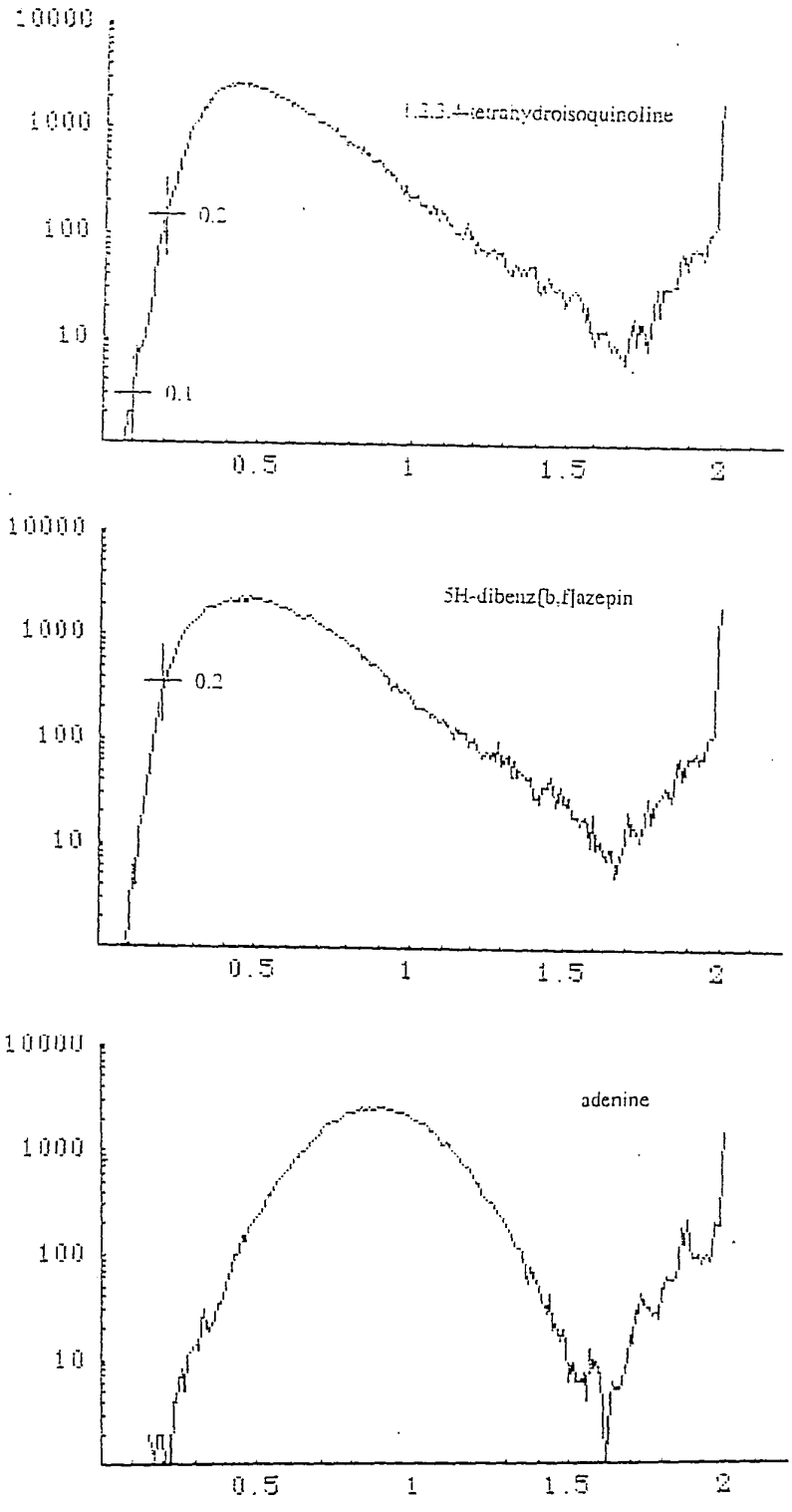

10000
1000
100
10
0.2
0.1
0.5
1
1.5
2
1,2,3,4-tetrahydroisoquinoline
10000
1000
100
10
0.2
0.5
1
1.5
2
5H-dibenz[b,f]azepin
10000
1000
100
10
0.5
1
1.5
2
adenine

FIG. 10B

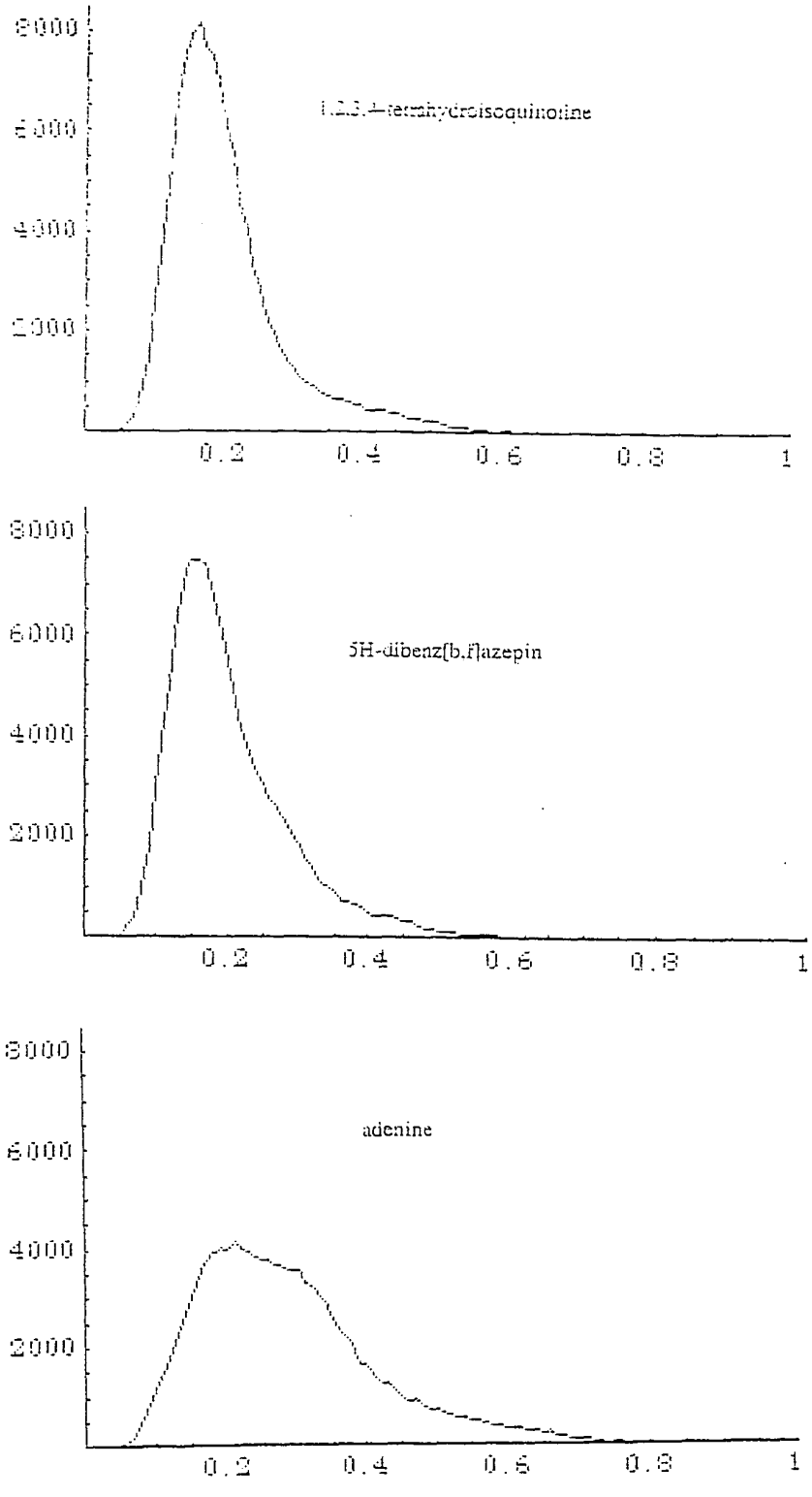

8000
6000
4000
2000
1,2,3,4-tetrahydroisoquinoline
0.2
0.4
0.6
0.8
1
8000
6000
4000
2000
5H-dibenz[b,f]azepin
0.2
0.4
0.6
0.8
1
8000
6000
4000
2000
adenine
0.2
0.4
0.6
0.8
1

FIG. 11A

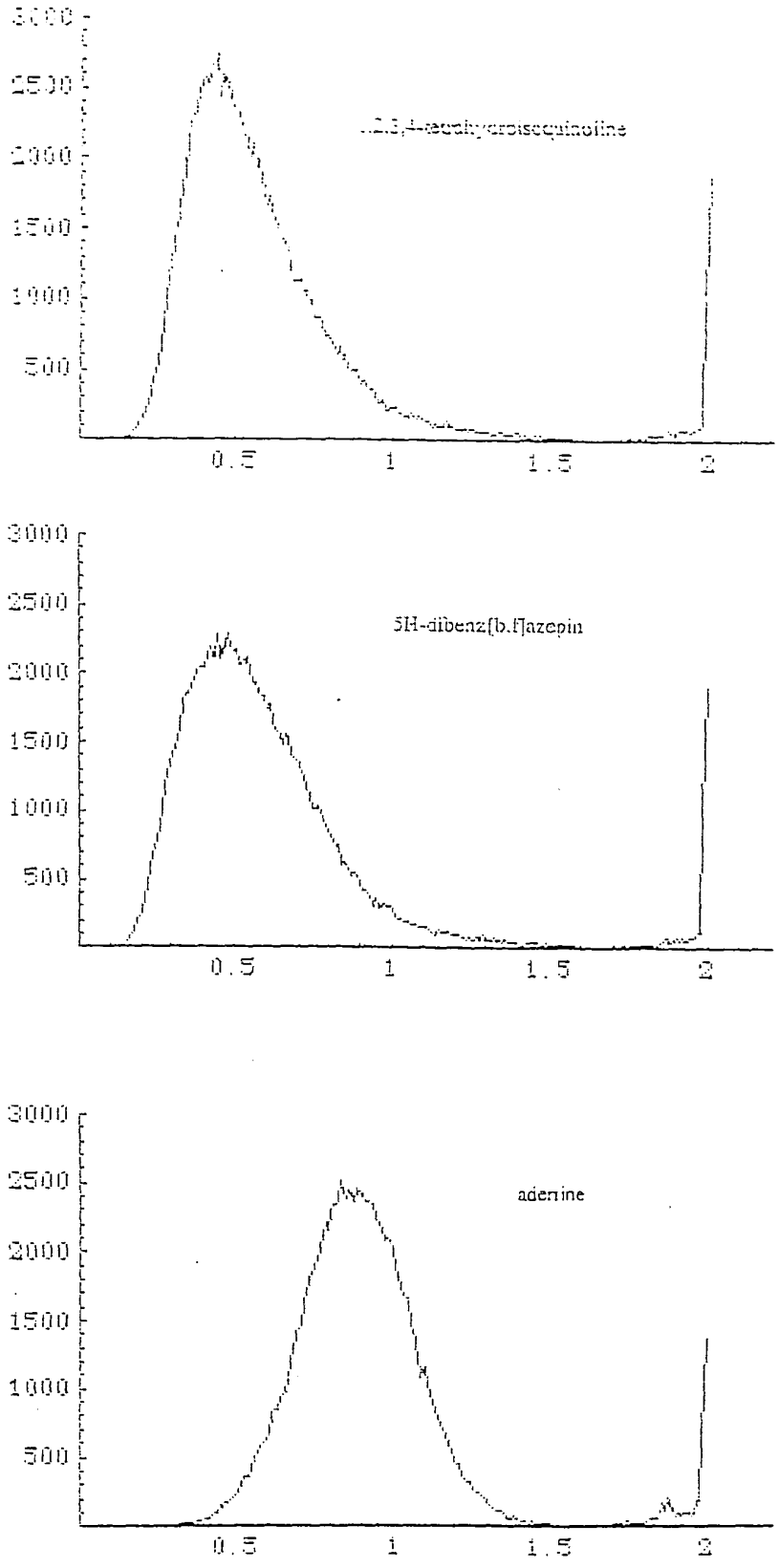

3000
2500
2000
1500
1000
500
0.5
1
1.5
2
1,2,3,4-tetrahydroisoquinoline
5H-dibenz[b,f]azepin
adenine

FIG. 11B

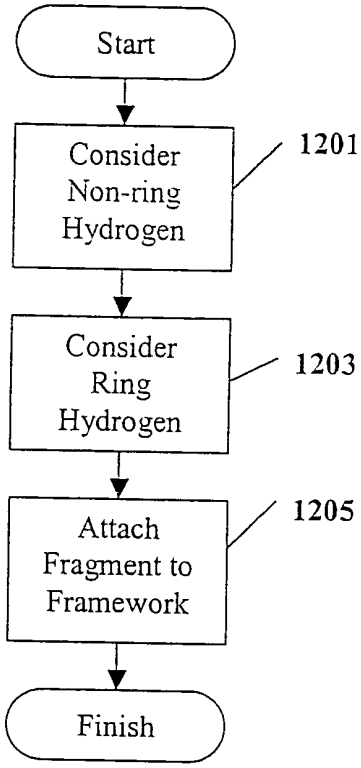

Start
Consider Non-ring Hydrogen
1201
Consider Ring Hydrogen
1203
Attach Fragment to Framework
1205
Finish

FIG. 12

FIG. 13A

FIG. 13B

FIG. 13C

Results for Six Query Compounds, 1-D Shape Signature Self-Comparison of Tripos Fragment using L_1 Metric

QUERY	Culling		No Culling	
	Hit	Score	Hit	Score
1,2,3,4-tetrahydroisoquinoline	1,2,3,4-tetrahydroquinoline	0.0370	1,2,3,4-tetrahydroquinoline	0.0173
	isochroman	0.0386	isochroman	0.0316
	1,2,3,4-tetrahydronaphthalene	0.0490	chroman	0.0399
	chroman	0.0574	1,2,3,4-tetrahydronaphthalene	0.0475
	indoline	0.0767	indan	0.0525
5H-dibenz[b,f]azepin	dibenzocycloheptatriene	0.0351	dibenzocycloheptatriene	0.0332
	dihydrophenanthrene	0.0482	dihydrophenanthrene	0.0384
	thioxanthene	0.0578	thioxanthene	0.0466
	dibenz[b,f]thiepin	0.0695	5H-dibenzo[b,f]-1,4diazepine	0.0487
	5H-dibenzo[b,f]-1,4-diazepine	0.0800	dibenz[b,f]thiepin	0.0578
1,4,6-gonatriene-3,17-dione	4,6-gonadiene-3,17-dione	0.0502	4,6-gonadiene-3,17-dione	0.0400
	1,4-gonadien-3-one	0.0743	1,4-gonadien-3-one	0.0660
	4-gonen-3-one	0.0984	4-gonen-3-one	0.0838
	1,3,5(10)-gonatriene	0.0986	1,3,5(10)-gonatriene	0.0862
	5(10)-gonen-3-one	0.1004	5(10)-gonen-3-one	0.0984
α-D-glucopyranose	β -D-mannopyranose	0.0417	α-D-mannopyranose	0.0376
	β-D-galactopyranose	0.0420	β -D-mannopyranose	0.0379
	α-D-mannopyranose	0.0559	β-D-galactopyranose	0.0391
	α-D-galactopyranose	0.0744	α-D-galactopyranose	0.0560
	β-D-glucopyranose	0.0748	β-D-glucopyranose	0.0766
Lysine	Arginine	0.0862	Methionine	0.0527
	Methionine	0.1024	Arginine	0.0821
	Palmitoleate(C16)	0.1163	Laurate(C12)	0.0959
	glycerol(-H)	0.1179	Palmitoleate(C16)	0.1004
	Oleate(C18)	0.1202	Myristate(C14)	0.1006
adenine	guanine	0.0626	guanine	0.0388
	7H-purine	0.0712	7H-purine	0.0701
	cytosine	0.0840	benzimidazole	0.0743
	uracil	0.0854	1H-indazole	0.0747
	benzopyrimidine	0.0860	benzoxazole	0.0775

FIG. 14A

Results for Six Query Compounds, 1-D Shape Signature Self-Comparison of Tripos Fragment Database using L_1 Metric

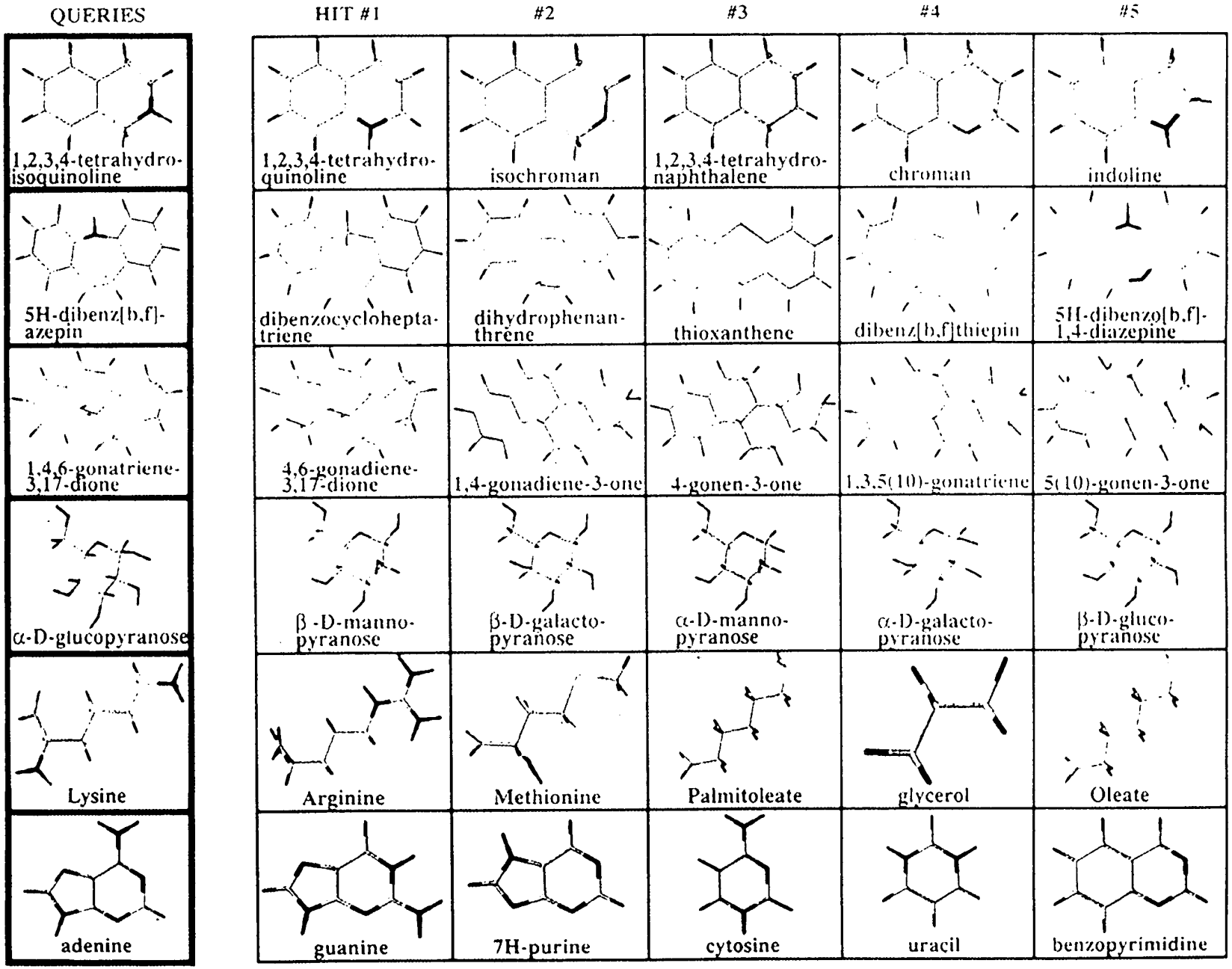


FIG. 14B

. Results for Six Query Compounds, 2D-MEP Shape Signature Self-Comparison of Tripos Fragment Database using L_1 Metric

QUERY	Culling		No Culling	
	Hit	Score	Hit	Score
1,2,3,4-tetrahydroisoquinoline	1,2,3,4-tetrahydroquinoline	0.0847	1,2,3,4-tetrahydroquinoline	0.0762
	1,2,3,4-tetrahydronaphthalene	0.1496	1,2,3,4-tetrahydronaphthalene	0.1307
	indoline	0.1732	indoline	0.1320
	acenaphthene	0.1908	indan	0.1554
	indan	0.2161	acenaphthene	0.1804
5H-dibenz[b,f]azepin	dibenzocycloheptatriene	0.1116	dibenzocycloheptatriene	0.1031
	acridan	0.2089	acridan	0.1538
	5H-dibenzo[b,f]-1,4-diazepine	0.2109	5H-dibenzo[b,f]-1,4-diazepine	0.1672
	1,2,3,4-tetrahydroisoquinoline	0.2268	phenanthridine	0.1762
	1,2,3,4-tetrahydroquinoline	0.2292	dihydrophenanthrene	0.1802
1,4,6-gonatriene-3,17-dione	4,6-gonadiene-3,17-dione	0.0888	4,6-gonadiene-3,17-dione	0.0852
	5a-gonane-3,17-dione	0.1383	5a-gonane-3,17-dione	0.1383
	1,4-gonadien-3-one	0.2028	1,4-gonadien-3-one	0.2097
	5a-gonan-3-one	0.2031	4-gonen-3-one	0.2122
	5a-gonan-17-one	0.2211	5a-gonan-3-one	0.2221
2-deoxy-β-D-ribofuranose	β-D-ribofuranose	0.2292	β-D-glucopyranose	0.2223
	β-D-glucopyranose	0.2368	α-D-fructofuranose	0.2317
	α-D-fructofuranose	0.2480	α-D-mannopyranose	0.2437
	α-D-galactopyranose	0.2616	β-D-ribofuranose	0.2445
	α-D-mannopyranose	0.2696	α-D-glucopyranose	0.2575
Lysine	Arginine	0.6615	Arginine	0.6617
	ethanolamine	0.7882	ethanolamine	0.7621
	choline	1.2682	choline	1.2442
	D-Threose	1.5332	D-Threose	1.4601
	D-Xylose	1.5667	D-Xylose	1.4912
adenine	pteridine	0.4025	benzothiazole	0.3493
	benzothiazole	0.4321	pteridine	0.3816
	guanine	0.4394	thiazole	0.3981
	7H-purine	0.4427	7H-purine	0.4254
	indene	0.4614	guanine	0.4265

FIG. 15

Results for Six Query Compounds, 1D Shape Signature Comparison of Tripos Fragment Database against the NCI Database using L_1 and R_1 Metrics

QUERY	L_1 Metric		R_1 Metric	
	Hit	Score	Hit	Score
1,2,3,4-tetrahydroisoquinoline	91-21-4	0.0291	91-21-4	0.1153
	10500-57-9	0.0336	10500-57-9	0.1409
	529-35-1	0.0348	578-54-1	0.1428
	578-54-1	0.0380	493-05-0	0.1534
	24206-39-1	0.0397	529-35-1	0.1743
5H-dibenz[b,f]azepin	833-48-7	0.0324	833-48-7	0.1404
	1211-06-9	0.0360	1211-06-9	0.1673
	10354-00-4	0.0415	10354-00-4	0.1789
	82-53-1	0.0441	42263-75-2	0.2142
	6279-16-9	0.0488	51087-02-6	0.2300
1,4,6-gonatriene-3,17-dione	24640-00-4	0.0450	6126-58-5	0.2289
	10448-96-1	0.0556	24640-00-4	0.2561
	438-67-5	0.0570	6968-06-5	0.2672
	5976-74-9	0.0576	20919-82-8	0.2908
	6126-58-5	0.0584	3601-97-6	0.2963
α-D-glucopyranose	488-66-4	0.0546	74561-03-8	0.2223
	23559-36-6	0.0548	488-66-4	0.2548
	74561-03-8	0.0553	488-64-2	0.2548
	16505-91-2	0.0607	6623-68-3	0.2548
	39392-65-9	0.0655	2037-48-1	0.2549
Lysine	5329-79-3	0.0478	37149-01-2	0.1874
	110-97-4	0.0486	6963-39-9	0.1882
	5343-35-1	0.0552	110-97-4	0.2107
	37149-01-2	0.0555	6281-43-2	0.2201
	7356-00-5	0.0563	104-50-7	0.2224
adenine	10325-61-8	0.0271	10325-61-8	0.0944
	54346-27-9	0.0304	54346-27-9	0.0988
	73-24-5	0.0310	5426-35-7	0.1178
	1123-54-2	0.0343	73-24-5	0.1178
	2227-98-7	0.0353	19165-47-0	0.1178

FIG. 16A

Results for Six Query Compounds, 1-D Shape Signature Comparison of Tripos Fragment Database vs. NCI

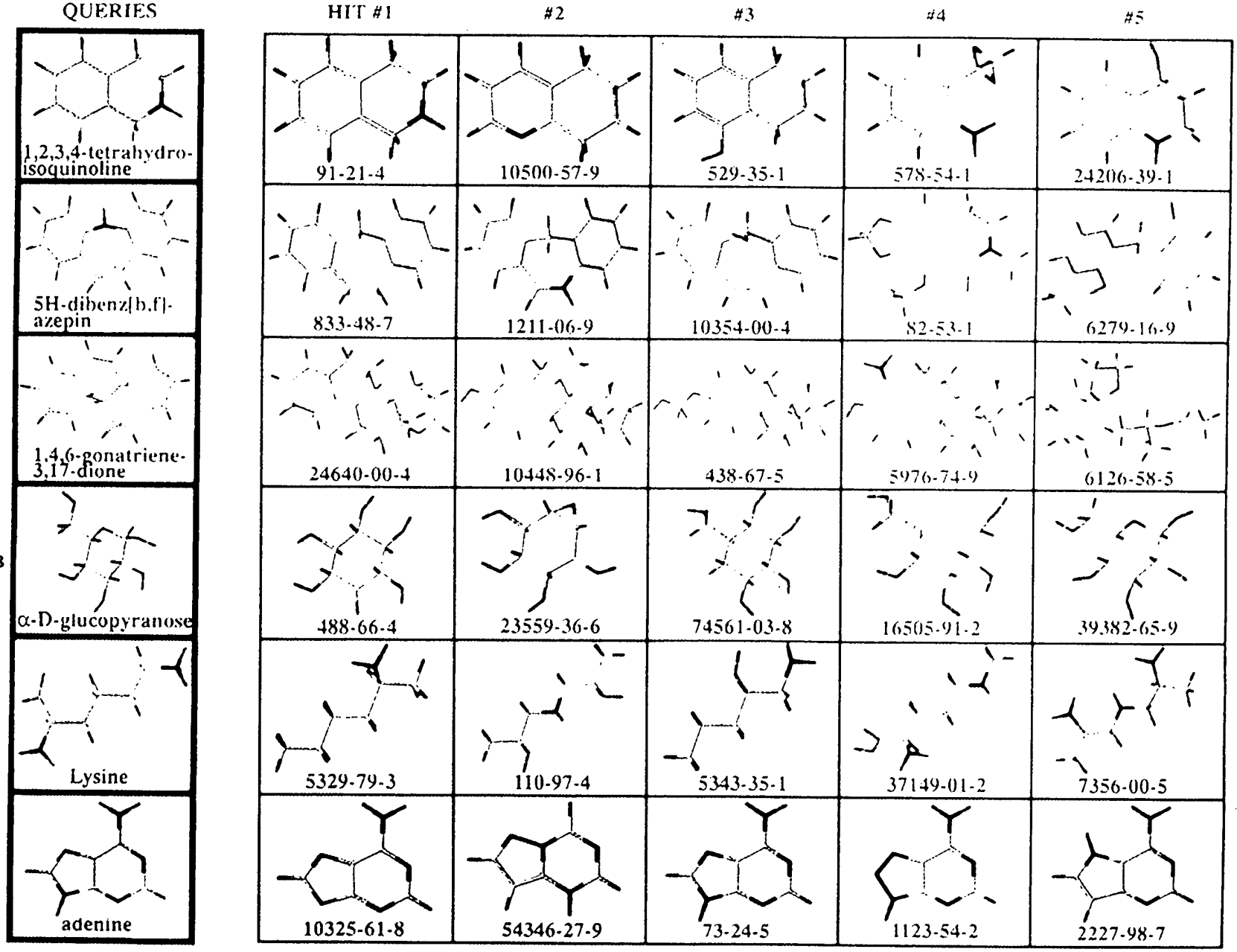


FIG. 16B

. Results for Six Query Compounds, 2D-MEP Shape Signature Comparison of Tripos Fragment Database against the NCI Database using L_1 and R_1 Metrics

QUERY	L_1 Metric		R_1 Metric	
	Hit	Score	Hit	Score
1,2,3,4-tetrahydroisoquinoline	91-21-4	0.0701	91-21-4	0.5232
	635-46-1	0.0816	635-46-1	0.6553
	1484-19-1	0.0940	1484-19-1	0.6977
	1780-19-4	0.0983	5344-99-0	0.7295
	5344-99-0	0.1011	1780-19-4	0.8070
5H-dibenz[b,f]azepin	30646-39-0	0.0947	30646-39-0	0.8078
	16886-10-5	0.1079	3377-71-7	0.9075
	32446-13-2	0.1089	16886-10-5	0.9104
	3377-71-7	0.1126	32446-13-2	0.9166
	833-48-7	0.1167	833-48-7	0.9411
1,4,6-gonatriene-3,17-dione	56763-86-1	0.1524	20056-05-7	1.3418
	734-32-7	0.1645	56763-86-1	1.3451
	93998-31-3	0.1682	74924-17-7	1.4169
	20056-05-7	0.1693	734-32-7	1.4949
	74924-17-7	0.1702	71837-43-9	1.5131
α-D-glucopyranose	52019-14-4	0.1815	52019-14-4	1.4065
	49871-87-6	0.1833	58691-27-3	1.4270
	58691-27-3	0.1912	49871-87-6	1.4514
	7404-25-3	0.2015	2280-44-6	1.5418
	14215-77-1	0.2018	14215-77-1	1.5520
Lysine	42021-74-9	0.5473	85385-47-3	4.1381
	58048-33-2	0.5549	58048-33-2	4.2359
	58048-35-4	0.5684	42021-74-9	4.2441
	37082-52-3	0.5719	78582-26-0	4.3301
	78582-26-0	0.5721	62194-88-1	4.3458
adenine	73-24-5	0.0683	73-24-5	0.5048
	28128-33-8	0.1537	28128-33-8	1.0824
	7390-62-7	0.1581	7390-62-7	1.2106
	2846-89-1	0.1744	2846-89-1	1.2491
	3647-48-1	0.1820	1904-98-9	1.2947

FIG. 17A

Results for Three Query Compounds, 2D-MEP Shape Signature, Tripos Fragment Database vs. NCI

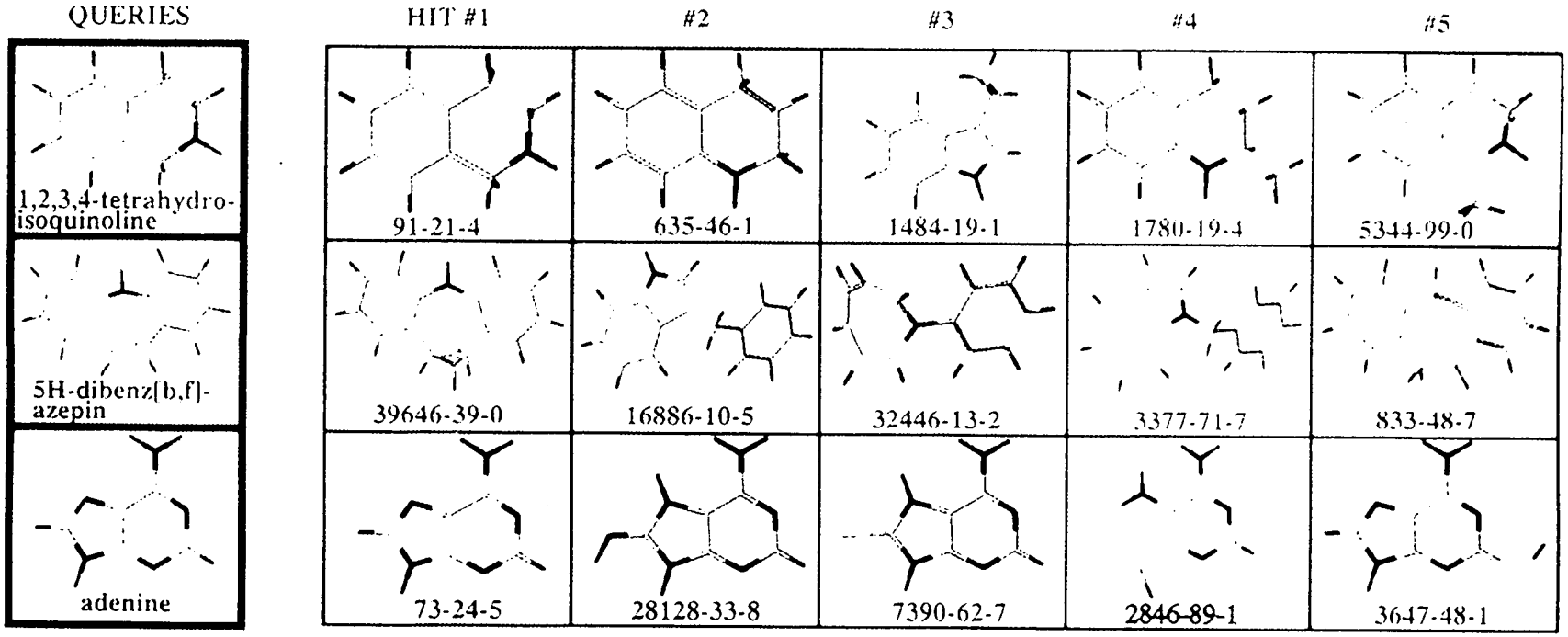


FIG. 17B

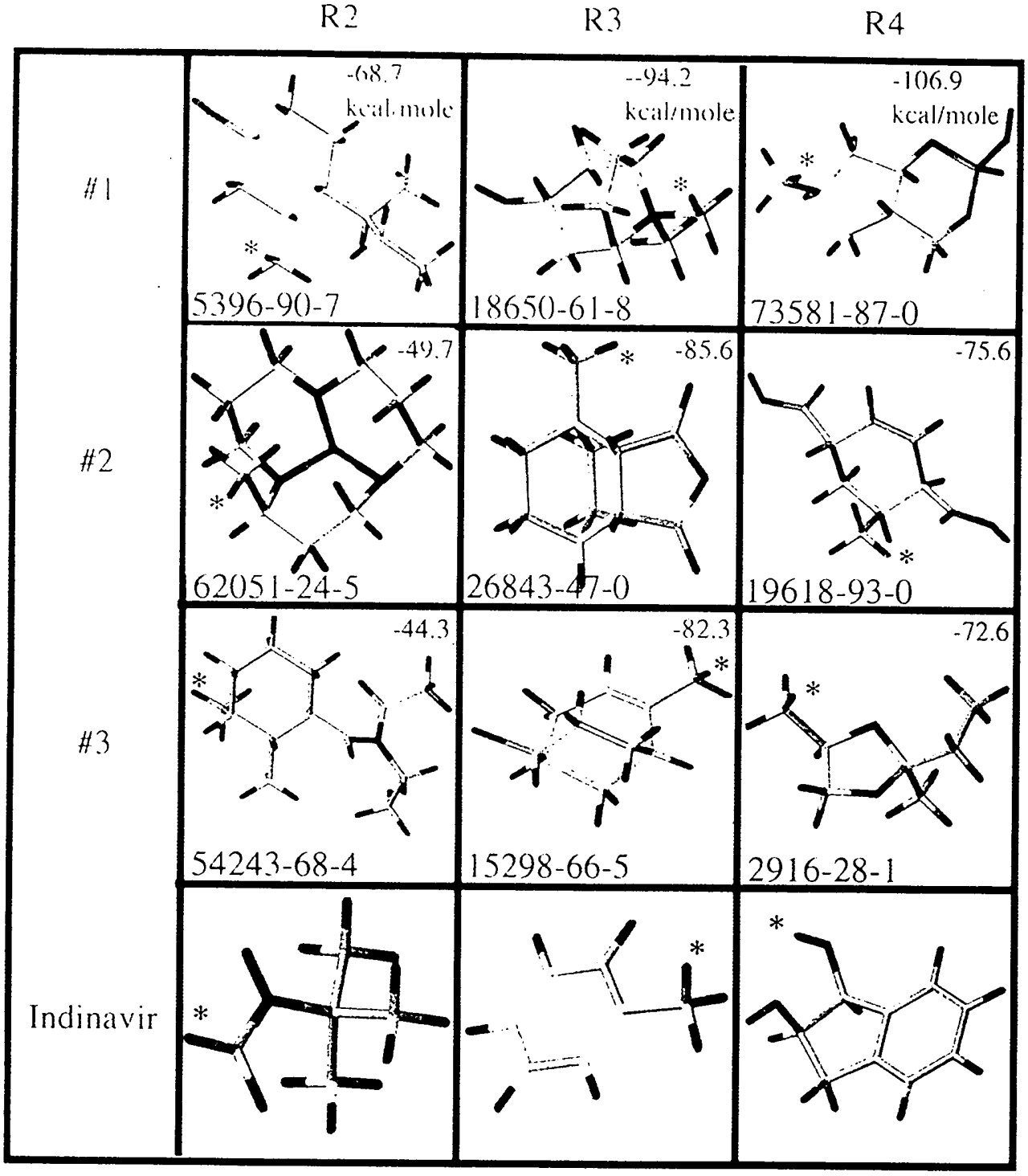

R2
R3
R4
#1
#2
#3
Indinavir
-68.7 kcal/mole
--94.2 kcal/mole
-106.9 kcal/mole
5396-90-7
18650-61-8
73581-87-0
-49.7
-85.6
-75.6
62051-24-5
26843-47-0
19618-93-0
-44.3
-82.3
-72.6
54243-68-4
15298-66-5
2916-28-1

FIG. 18

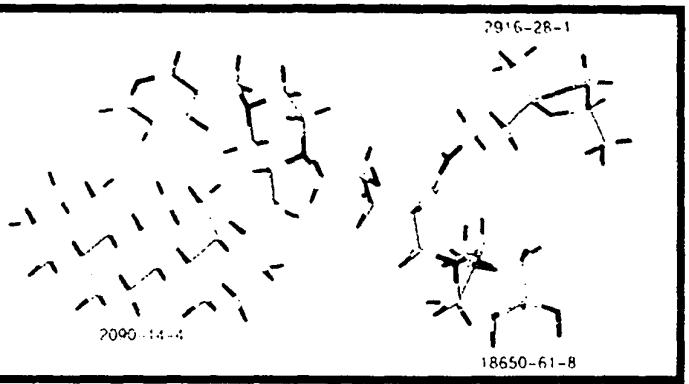
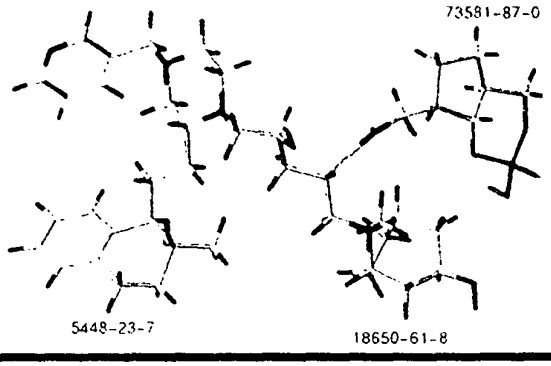
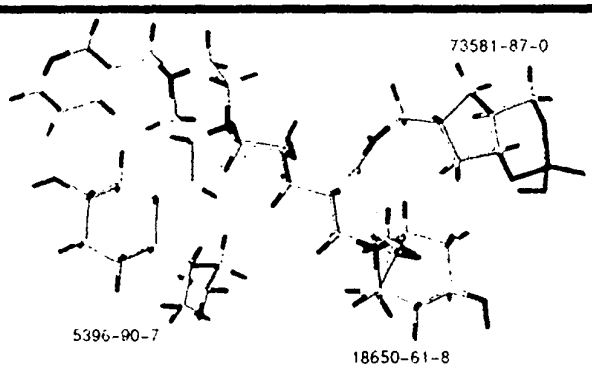
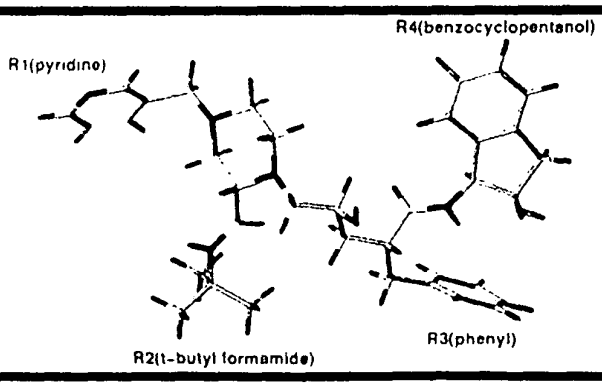
Rank	Energy(kcal/mol)	Structure
#1	-117.3	
#2	-117.0	
#4	-115.2	
Indinavir	-97.2	

FIG. 19